

Improving Acquisition Execution Situational Awareness



**Acquisition Data
Consolidation
and
Data Analysis**

Agenda

- ***Studies Review/Refresher (Ron Lile)***
- ***Data Analysis (Jim Woolsey/Steve Miller)***
- ***Acquisition Data Consolidation: Central Repository (Ron Lile/Debbie Tomsic)***
- ***Summary and Wrap-up (Ron Lile/All)***

Improving DoD Acquisition Execution Situational Awareness



***Debbie Tomsic
(AT&L/ARA)***

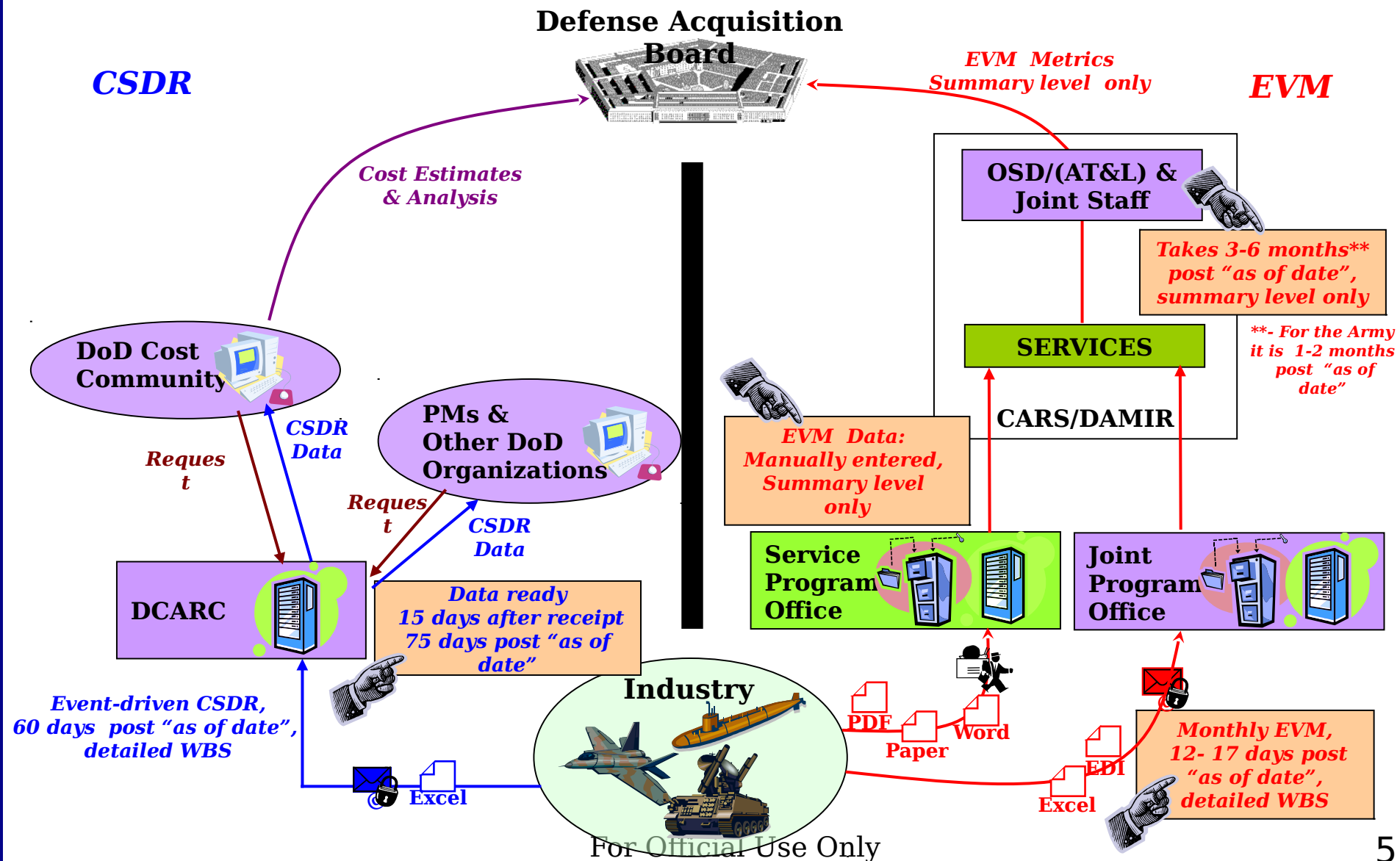
***Ron Lile (Director,
DCARC)***

December 2006

Our Proposal

- ***Focuses on improving situational awareness at all levels of DoD***
- ***Situational awareness requires timely, accurate, and actionable information***
- ***Our proposal has two integrated parts***
 - 1. Aggregating DoD acquisition data into a single repository and providing the necessary tools to quickly and easily access the data***
 - 2. Developing analysis tools to alert decision makers when, and only when, action is required***

CSDR and EVM Reporting: Current Status



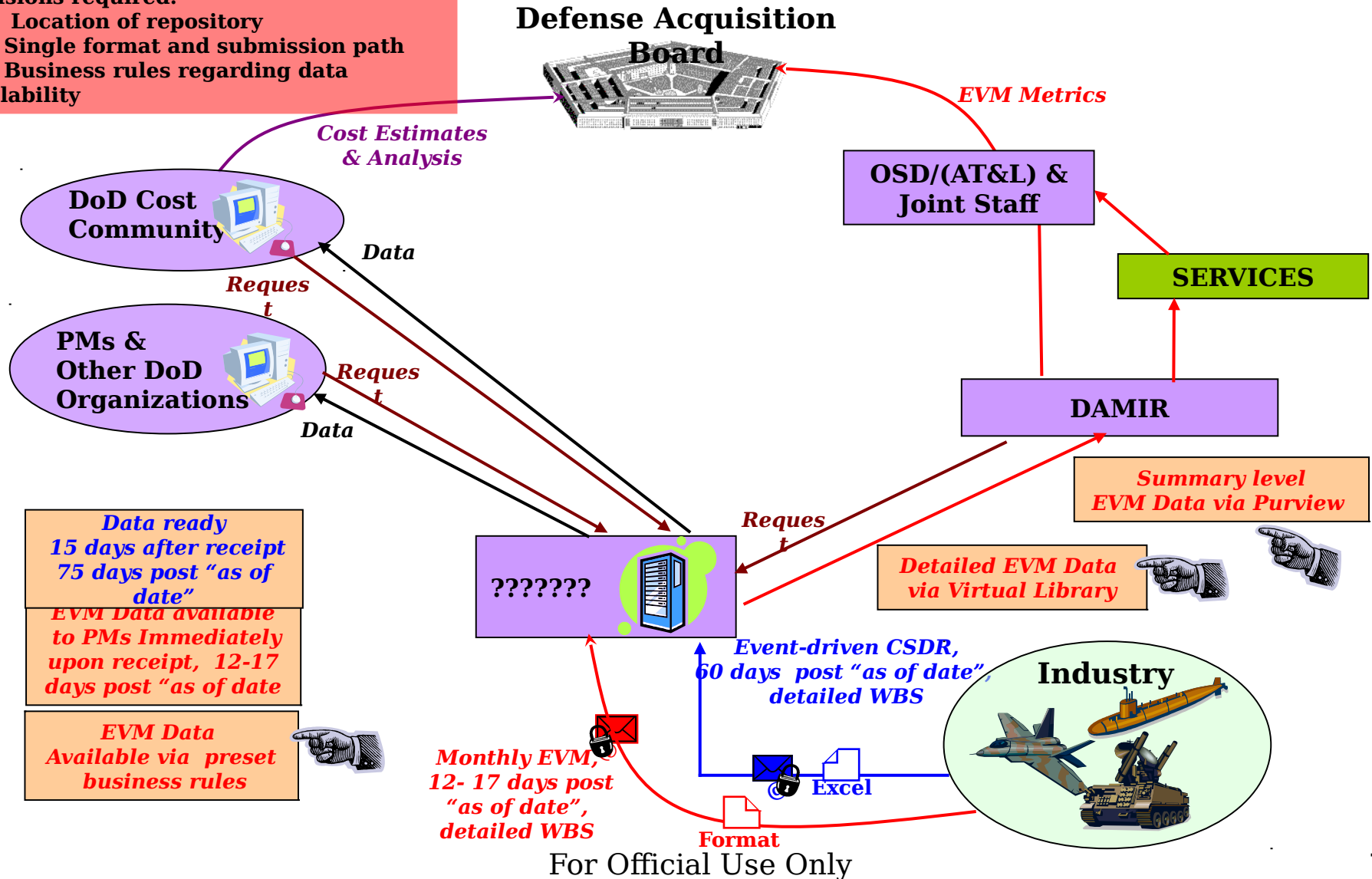
Part 1: Acquisition Data Consolidation

- ***Consolidating key acquisition data in one repository***
 - ***Minimal effects, if any, on industry***
 - ***Improved Gov't organization for effectiveness***
- ***Improving the Contracting Process***
 - ***Industry involvement required***
- ***Improving the Policy/Reporting levels***
 - ***Industry involvement required***

CSDR and EVM Reporting: Improved Model

Decisions required:

1. Location of repository
2. Single format and submission path
3. Business rules regarding data availability



Part 2: Data Analysis

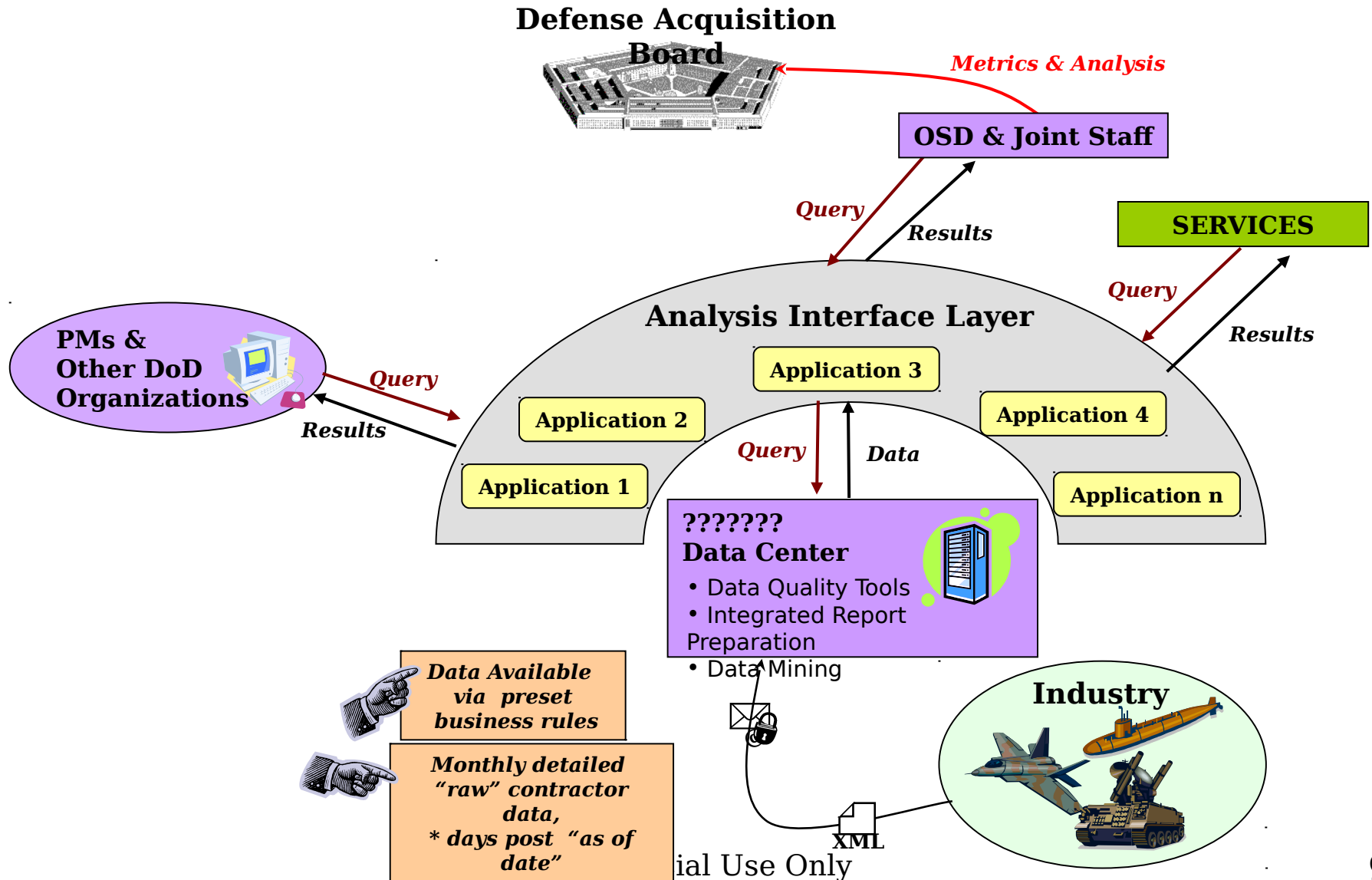
1. Manually apply Earned Value (EV) Analysis Tools

- Program Level Study under contract***
 - ~ 20 programs in conjunction with DAES process***
- Detailed Level, Cross-cutting Study Pending***
 - SBIRS High; DD(X)***
- Work with Services to develop and validate tools***

2. Standardize EV Analysis tools

3. Integrate standardized tools into acquisition data repository

Key DoD Acquisition Data: An End State



Where are we?

- ***Received go ahead on study from USD(AT&L)***
- ***Part 1: Acquisition Data Consolidation***
 - ***Consolidating key acquisition data in one repository***
 - ***Initiated pilot on 9 programs (with only CPRs)***
 - ***Improving the Contracting Process***
 - ***Started dialogue with Industry***
 - ***Next is dialogue with Defense Procurement and Acquisition Policy re internal DoD issues***
- ***Part 2: Data Analysis***
 - ***Manually apply Earned Value (EV) Analysis Tools***
 - ***Program level data analysis underway***
 - ***Detailed level data analysis just kicking off***
- ***Collaborating with another related AT&L/ARA pilot study***
 - ***DAU Lab: Enterprise Data Visibility & Integrated Performance***

Development of Earned Value Analysis Tools

December 2006

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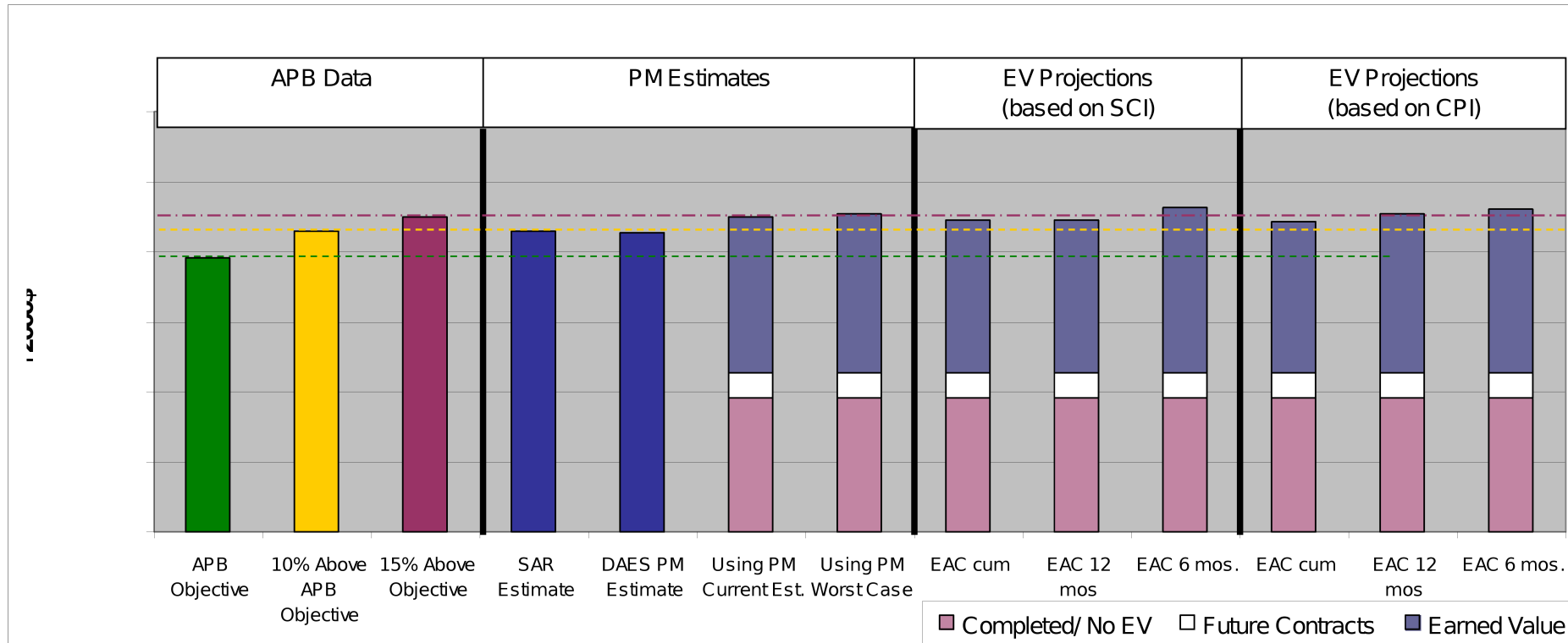
Background

- IDA has three tasks related to analysis of earned value data:
 - ◆ Expanded Use of Earned Value Analysis
 - (FY 2006; AT&L/ARA)
 - ◆ FY 2007: Expanded EV follow-on
 - (FY2007; AT&L/ARA)
 - ◆ Detailed Earned Value Analysis
 - (FY2008; AT&L/ARA and PAE/CAIG)

Expanded Use of Earned Value

- Create tool for using EV to track progress against program goals
- Create standardized output format
- Apply the tool to applicable programs

EV Analysis Output



Challenges Encountered

- Conversion to base year
- Uneven EV reporting
 - ◆ Data missing, late or wrong
- Unorthodox management of contracts
 - ◆ Contracts broken into pieces
 - ◆ Bridge funding triggering an EV “startover” in the middle of a contract
 - ◆ OTB performed without re-setting BCWP, BCWS

- 24 programs completed
 - ◆ AEHF, AGM-88E, ARH, B-2RMP, C-130 AMP, Cobra Judy, CVN 21, CVN 77, E-2D, EFV, FCS, Land Warrior, LCS, LPD-17, MP RTIP, MUOS, Navstar, NPOESS, Ohio Class, P-8A, Patriot MEADS CAP, T-AKE, Virginia Class, WIN-T
- Many data and program anomalies understood and corrected
- Analysis turnaround time meets DAES requirements
- Analysis used in program discussions
- Process briefed to SAF/AQ

Expanded EV Follow-on

- Update applicable programs using the tool developed in FY2006
- Create metrics for analyzing schedule progress
- Explore methods for analyzing progress of program groups
 - ◆ Capability area, contractor, system class
- Work with programs to improve data
- Create thresholds for Green, Yellow and Red
- Achieve monthly turnaround time
- Integrate into evolving DAES

Detailed Earned Value Analysis

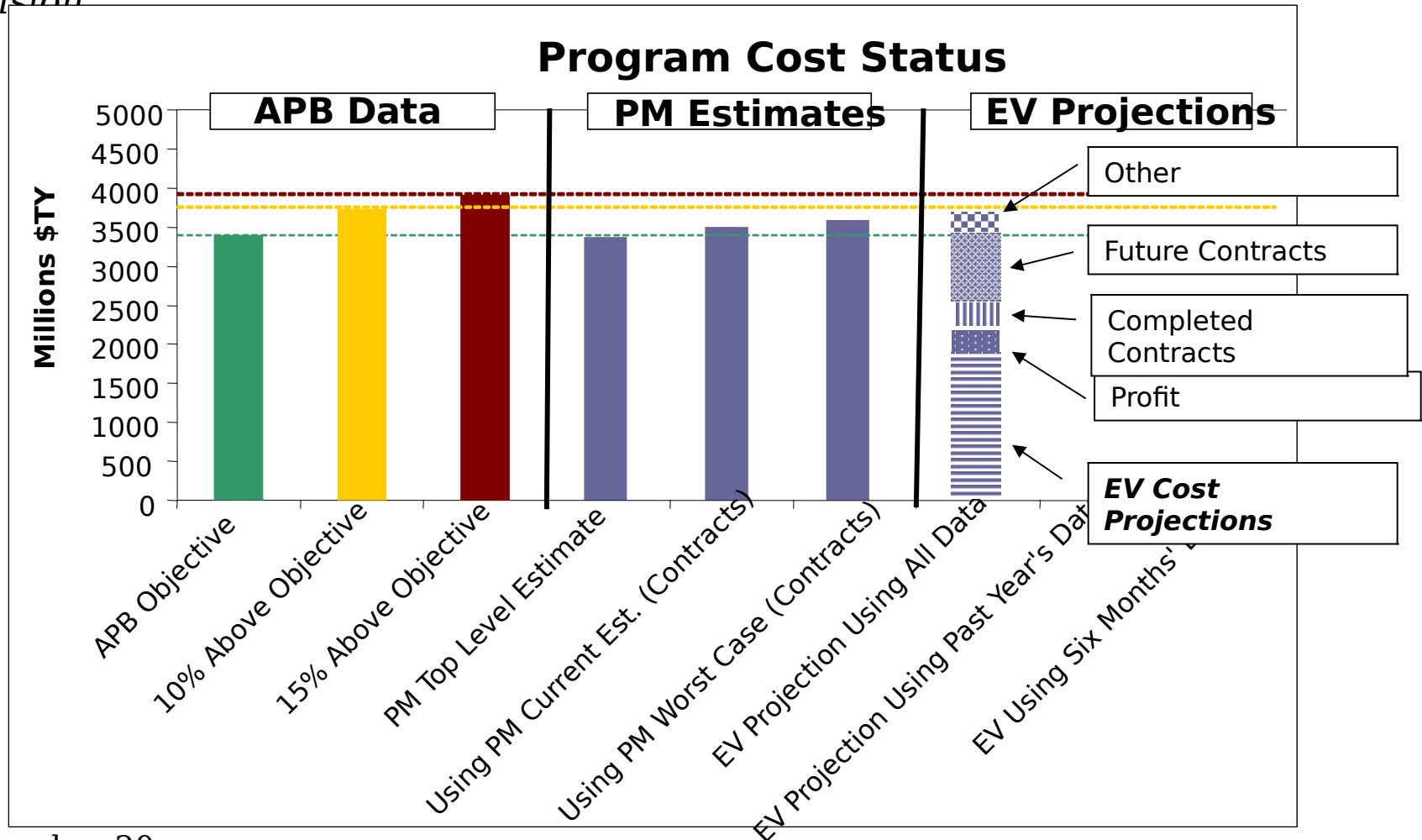
- Create automatable early warning metrics using lower level EV data
- Use statistical process control as a conceptual model
- Develop triggers to identify changing trends and filters to limit false alarms
- Test potential metrics using synthetic data
- Apply resulting tools to actual program data (e.g. SBIRS High and DDG 1000)

Backups

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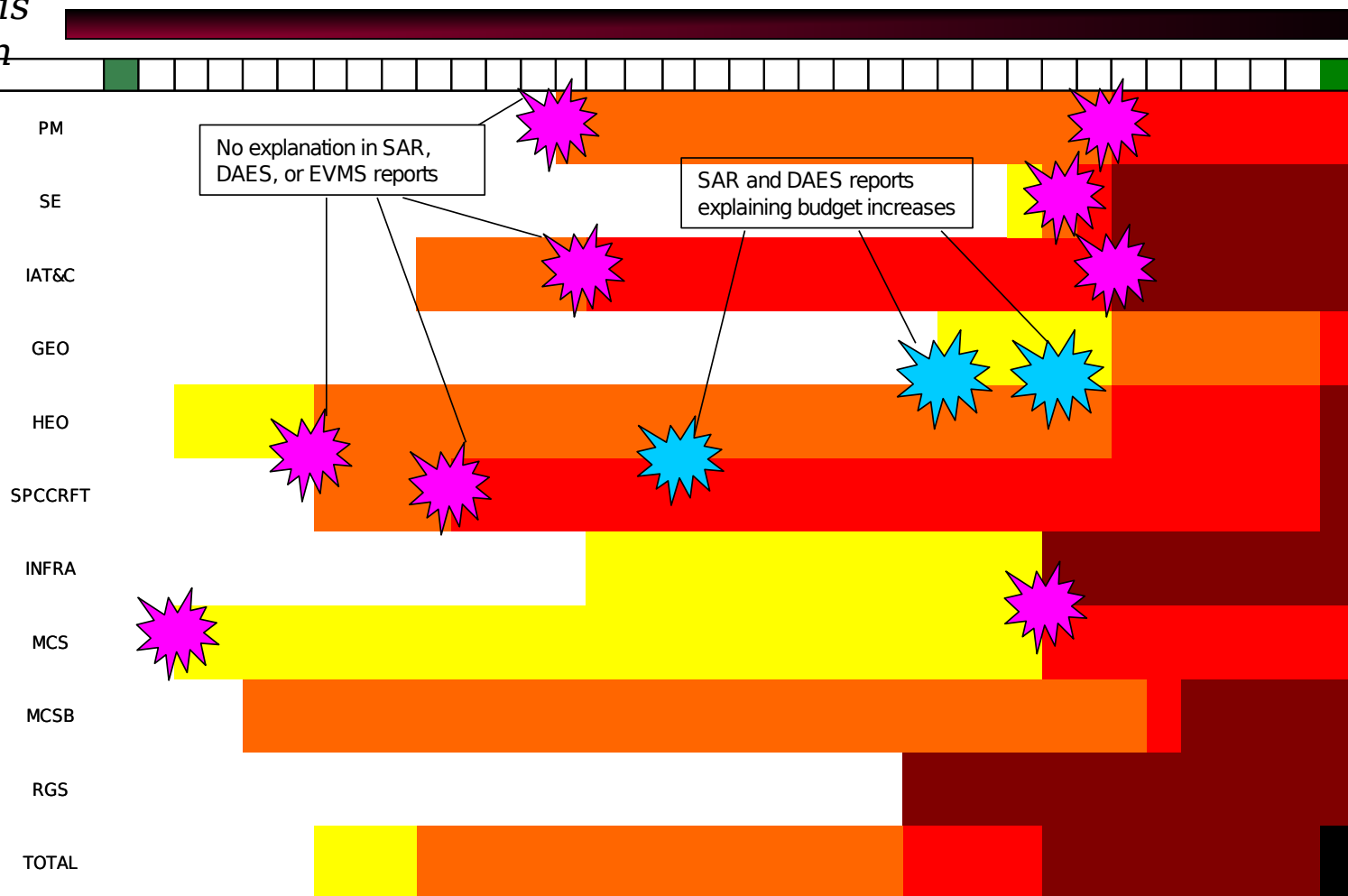
Construction of Program-Level Projections





Cost Analysis
& Research
Division

Over Target Baseline Status Chart (SBIRS High Example)

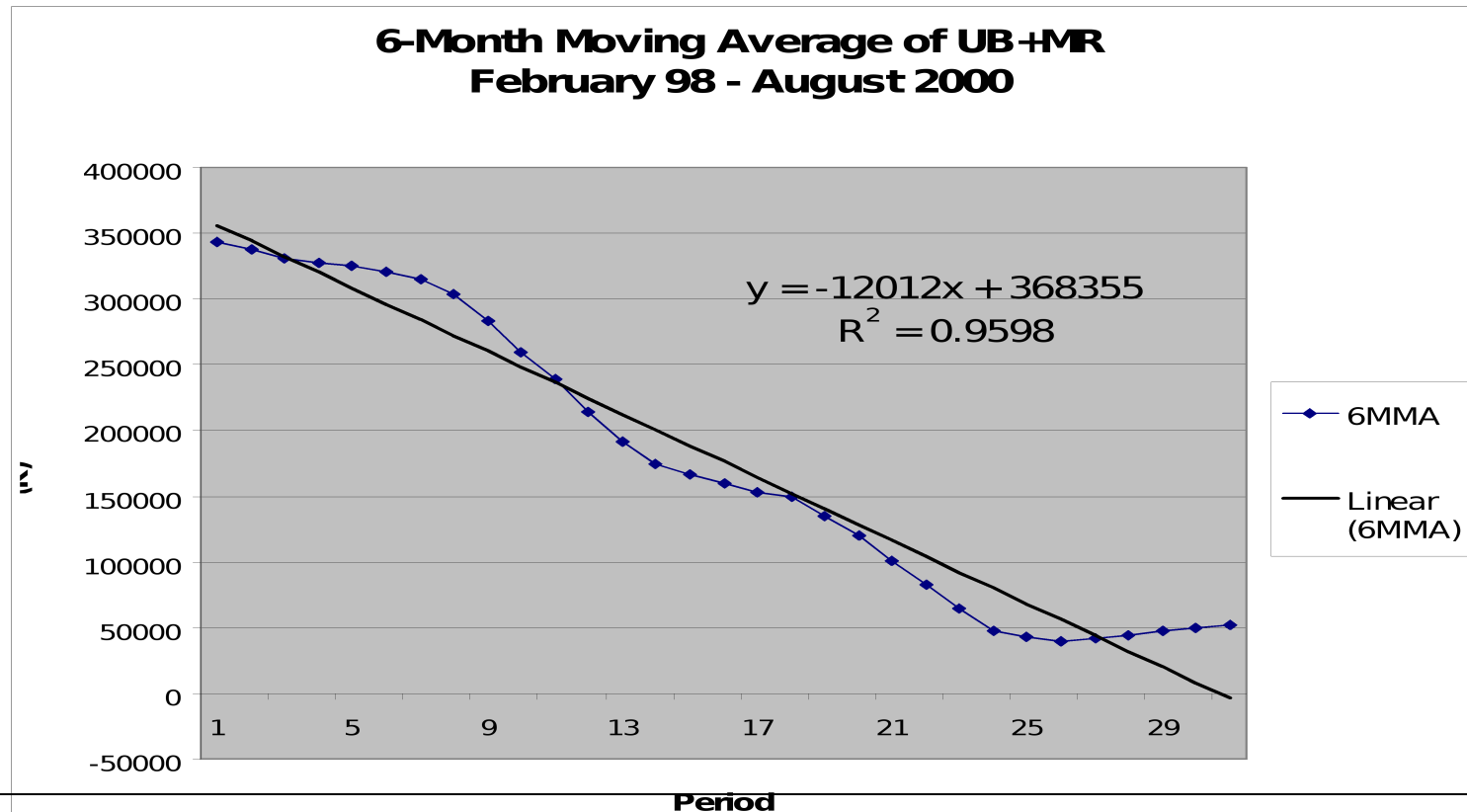


OTB Chart Shows

- OTB Chart with annotations from explanatory SAR and DAES reports (blue explosions) indicate that in **some** cases the BAC growth, as reported in the EVMS data, could be used as an early indicator for developing technical problems.
- BUT...
Because management has the discretion to reallocate assets to avoid acknowledging unfavorable variances, OSD did not see other at-risk areas buried deeper within the EVMS data. In particular, the OTB chart prior to the first re-baseline reveals \$436M in large, major element BAC increases about which the EVMS reports are silent (magenta explosions).
- WHY?
EVMS reporting structure can be manipulated to permit minimal disclosure of the technical reasons and risks behind BAC increases because its focus is primarily upon schedule and cost variances. As illustrated in the next slide, the contractor can use undistributed budget and management reserves to let BAC grow apace with a ballooning EAC, while limiting unfavorable variances.

The OTB chart identifies some problems earlier than the current variance driven reporting scheme using data that is already available to OSD.

EVMS Structure: UB+MR



UB+MR acts as an enabler to masking unfavorable cost variances, which permits the contractor to omit explanations of technical problems on CPRs.

Conversion to Base Year

- SAR gives ratios of base-year to then-year
- We convert EV portion of data separately, so that contracts within long running programs are converted appropriately
- Process
 - ◆ Interpolate to get ACWP into month-by-month form
 - ◆ Extrapolate to end of contract using EAC and ECD
 - ◆ Use Service indices to convert to Base-Year
 - ◆ Use SAR for non-EV items

EAC Calculations

- Most EV estimates are based on standard EV equations:

$$EAC_{CPI} = \text{Cost to Date} + \frac{\text{Budgeted Cost of Remaining Work}}{\text{Cost Performance Index}}$$

Or

$$EAC_{SCI} = \text{Cost to Date} + \frac{\text{Budgeted Cost of Remaining Work}}{\text{Cost Performance Index} * \text{Schedule Performance Index}}$$

Improving Acquisition Execution Situational Awareness: Central Repository Pilot



***Debbie Tomsic
(AT&L/ARA)***

***Ron Lile (Director,
DCARC)***

December 2006

Central Repository Pilot

- **Objective:**
 - ***Demonstrate and evaluate the feasibility of implementing an automated Central Repository (CR) that provides for the centralized reporting, collection, and distribution for Key Acquisition Data, starting with Contract Performance Reports (CPRs).***
- **Develop and implement test policies and procedures to evaluate:**
 - ***Complete, accurate, timely, and secure transfer of electronic data from the contractor to the CR.***
 - ***Secure and controlled warehousing of data in the CR.***
 - ***Controlled, timely, and secure access to data by authorized users.***
 - ***Business rules that govern reporting, access, and availability of data.***
 - ***Estimated workload impact and required resources to implement CR.***
- **Goal:**
 - ***Develop a set of business rules for possible DoD-wide implementation that are supported by a consensus of the CR participants.***

Repository Pilot Programs

<u>Program</u>	<u>Service</u>	<u>Center</u>	<u>Contractor</u>	<u>DAES Group</u>
C-17A*	Air Force	ASC	Boeing	A
Global Hawk	Air Force	ASC	Northrop Grumman	A
SBIRS HIGH	Air Force	SMC	Lockheed-Martin	A
ARH	Army	AMCOM	Bell	C
JLENS	Army	AMCOM	Raytheon	A
Land Warrior	Army	CECOM	General Dynamics	B
P-8 (MMA)	Navy	NAVAIR	Boeing	C
SM-6	Navy	NAVSEA	Raytheon	A
MUOS	Navy	SPAWAR	Lockheed-Martin	B

* -- Replaced JASSM, which was listed in the original memo

Reporting of Data

- ***Requirement:***
 - ***Complete, accurate, timely, and secure transfer of electronic data from the contractor to the CR.***
- ***Architecture:***
 - ***Leverage the CSDR web upload system***
 - ***Certificate, username and password needs to be issued to contractor POC***
- ***Questions to be answered:***
 - ***What should the standard form factor be?***
 - ***How do we affect a change in the form factor?***
 - ***What are the resources required to change the form factor?***

Securing of Data

- ***Requirement:***
 - ***Secure, web-accessible central repository providing timely access to data to diverse users***
- ***Architecture:***
 - ***Leverage the CSDR Repository (DACIMS)***
 - ***Certificate, user id, and password needs to be issued to authorized users (or CAC registration and access approved)***
- ***Questions to be answered:***
 - ***Who are the authorized users?***
 - ***What business rules should govern data access and distribution?***
 - ***How do we affect a change in the distribution list? Is it necessary?***










Accessing the Data

- ***Requirement:***
 - ***Controlled, timely, and secure access to data by authorized users.***
- ***Architecture:***
 - ***Certificate, user id, and password needs to be issued to authorized users (or CAC registration and access approved)***
 - ***Data held in review area for fixed time period***
 - ***Automated business process for review and distribution of data***
 - ***Automatic email to stakeholder to ensure timely review***
 - ***Stakeholder comments stay with data***
 - ***Automatic time stamping of events for metrics reporting***
- ***Questions to be answered:***
 - ***Who are the authorized reviewers and users?***
 - ***What are the needed data transfers to DAMIR and the Services?***

Business Rules

- ***Requirement:***
 - ***Determine Business rules that govern reporting, access, and availability of data***
- ***Questions to be answered:***
 - ***Who are the authorized users & reviewer?***
 - ***When do the authorized users get access to the data?***
 - ***What are the needed data transfers to DAMIR and the Services?***

Draft Pilot Business Rules

	Upload	Immediate Access in Holding Area	After 5 Days (in Holding Area)	After 10 days (in Central Repository)
<i>Contractor</i>				
<i>PM Office</i>				
<i>PM Support Cntr</i>		 *		
<i>PEOs and SAEs</i>				
<i>DCMA/Oversight</i>				
<i>OSD/AT&L</i>				 **
<i>Other Gov't Analysts</i>				



= Own program(s)/Contracts

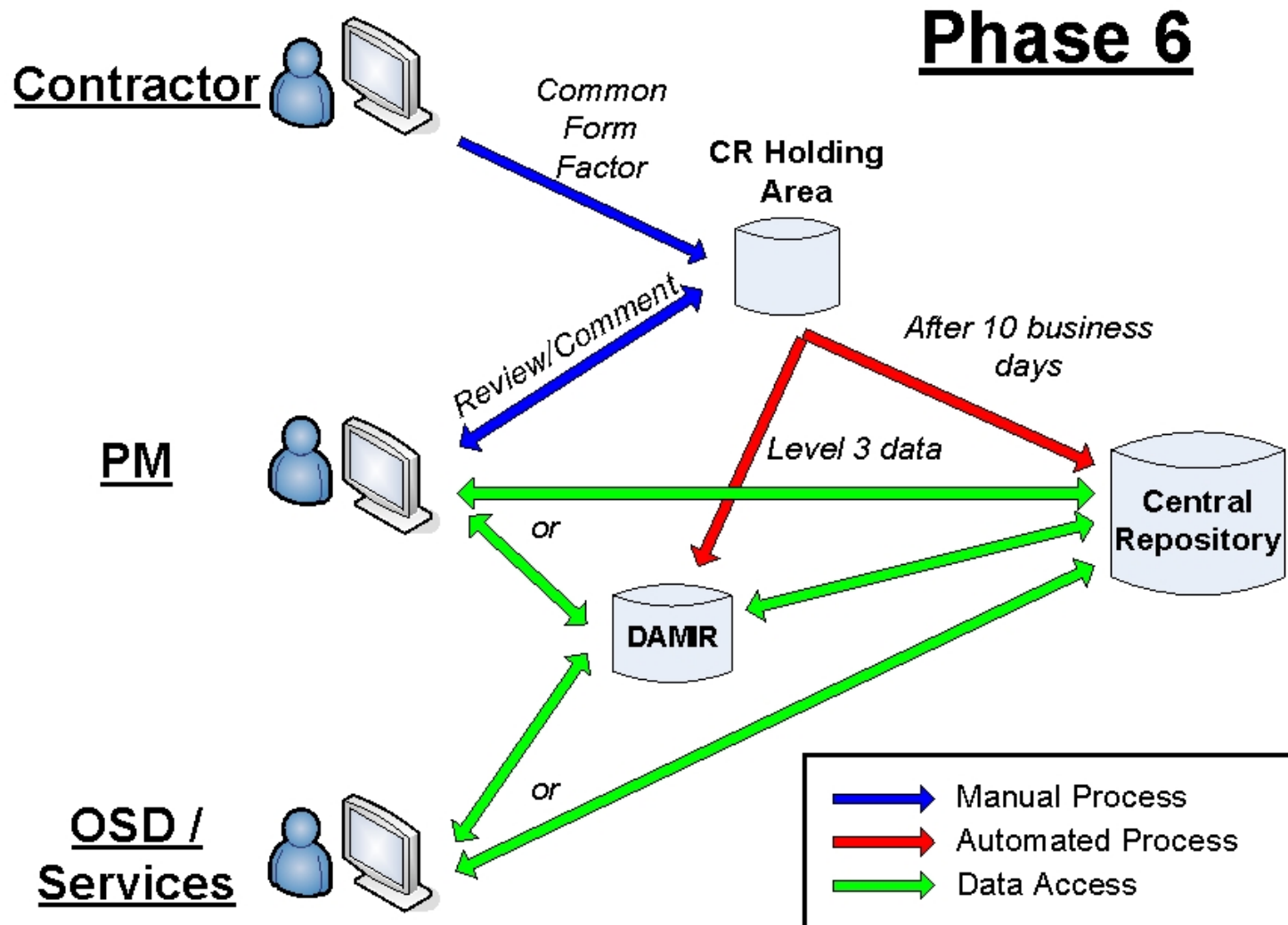


= All programs

* -- As approved by PM and Contractor (data provider)

** -- This is also when DAMIR will automatically pull CPR data through WBS Level 3 (Level 4 for space programs)

Data Reporting and Access Process



* -- From "As-of Date", for contracts beginning after April 2005. Legacy contracts have up to 25 calendar days from "As-of Date".

Timeline (in days)

-12 to -17
business
days*

0

+5

+10

+15

• As-of
Date of
CPR

• Contractor
submits CPR to
Repository.

• PM receives
automatic
notice of
submittal and
has immediate
access

• PEO can
access the
submittal and
ask the PM
questions
about the data

• OSD and Gov't
Cost Estimators
can access the
submittal

• (Phase 4)
DAMIR
automatically
pulls data
through WBS

• Earliest date
that others can
ask the PM
questions about
the data

* -- Effective with new contracts beginning April 2005.
Legacy contracts have up to 25 calendar days from As-of
Date.

Actions by Organization

- ***DCARC/AT&L***
 - ***Provide guidance, oversee and facilitate CR pilot***
 - ***Provide status to and coordinate with CR stakeholders***
 - ***Develop CR software to process and store CPRs***
 - ***Provide site registration and report upload instructions***
 - ***Verify that files have been uploaded properly***
 - ***Coordinate with OSD and Services to arrange needed data transfers to DAMIR and the Services***
 - ***Track resources and other metrics***

Actions by Organization

- ***DoD PMs***
 - ***Provide CPR info to DCARC***
 - ***Identify CPR-reporting primes and subs***
 - ***Contracts***
 - ***Formats for each contract***
 - ***Due dates***
 - ***Recommend approach to change contracts for***
 - ***Report upload to CR***
 - ***Change to common format (if required)***
 - ***Track resources using DCARC tracking template***
 - ***Implement DCARC site registration instructions***

Actions by Organization

- ***Contractors***
 - ***Recommend approach to change contracts***
 - ***Report upload to CR***
 - ***Change to common format (if required)***
 - ***Implement DCARC Resource Tracking Instructions***
 - ***Implement DCARC site registration instructions***
 - ***Make report distribution changes***
 - ***Upload reports***
 - ***Respond to additional PM questions about data***

Next Steps

- **Implement consolidated reporting on Pilot Programs**
 - **Establish phase-in test periods**
 - **Form factor for submittal**
 - **Business rules**
 - **Identify OSD and Service data flow requirements**
 - **Determine data access requirements (e.g., organizational, timing)**
 - **Determine resources necessary to proceed with later phases**
- **Identify other acquisition data candidates for inclusion in the repository**
- **Develop repository recommendations**
 - **Coordinate with:**
 - **CR Pilot Working Group**
 - **Situational Awareness Studies Working Group**
 - **Joint Government/Industry EVM Working Group**
 - **CSDR Focus Group**
 - **DAES Process Principals**
 - **Present to applicable groups**
- **Present findings and recommendations to SAEs and USD(AT&L)**

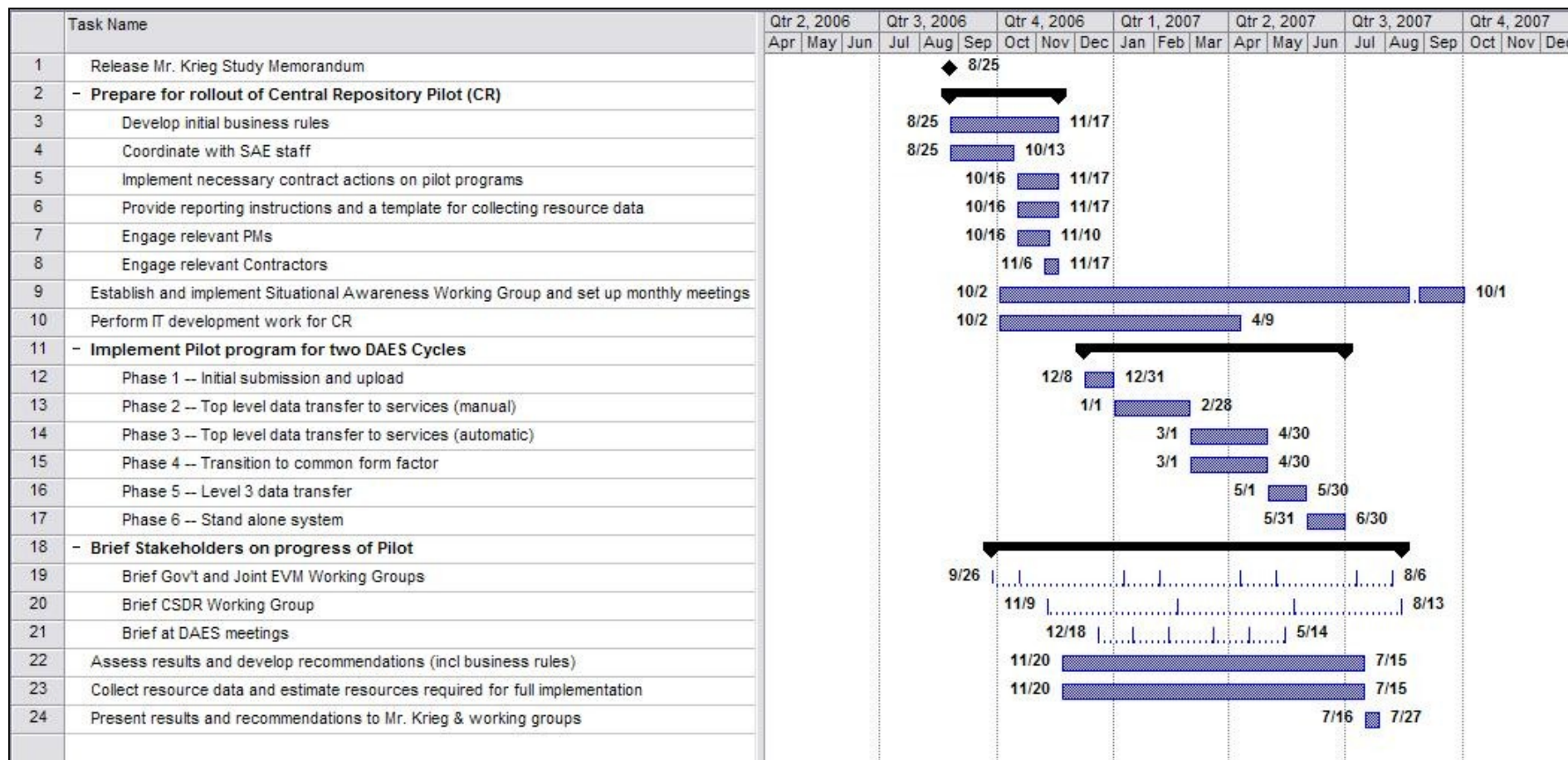
Status

- ***Met with Program Office POCs on Nov 6th***
- ***Received confirmation that all contractors see CR submission as no-cost administrative change***
- ***Sent out registration instructions***
- ***Received a list of all participants who will register and their roles***
- ***Sent out Resource Tracking guide***
- ***Started user registration***

Programs Status

<u>Service</u>	<u>Program</u>	<u>First Upload Due</u>	<u>Users Requested</u>	<u>Users Registered</u>
AF	C-17A	Dec 22nd	11	5
AF	Global Hawk	Jan 1st (early)	8	7
AF	SBIRS HIGH	Dec 19th (early)	11	8
Army	ARH	Dec 31st	4	3
Army	JLENS	Dec 8th (late)	4	3
Army	Land Warrior	Dec 24th	4	3
Navy	P-8 (MMA)	Dec 21st	8	2
Navy	SM-6	Dec 13th (past due)	4	2
Navy	MUOS	Dec 28th	6	4
Totals:			60	37

Repository Pilot Schedule



Summary and Wrap-up

- ***Key Issues***
- ***Actions***
- ***Integration Strategy***